PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form ([see an example](#)) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below. Some articles will have been accepted based in part or entirely on reviews undertaken for other BMJ Group journals. These will be reproduced where possible.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Frequent alcohol, nicotine or cannabis use is common in young persons presenting for mental health care: a cross-sectional study
AUTHORS	Hermens, Daniel; Scott, Elizabeth; White, Django; Lynch, Marta; Lagopoulos, Jim; Whitwell, Bradley; Naismith, Sharon; Hickie, Ian

VERSION 1 - REVIEW

REVIEWER	Frances Kay-Lambkin Research Fellow National Drug and Alcohol Research Centre University of New South Wales AUSTRALIA
REVIEW RETURNED	13-Nov-2012

THE STUDY	More information required on inclusion/exclusion criteria, and representativeness of sample compared to: headspace services more generally (i.e. who was excluded/not registered). More information could be provided on the logistic regression models that were tested – it is clear what the dichotomous outcomes were, but less clear which predictors were entered into the model, and what the criteria for acceptability was for each regression. This could be done in either the Statistical Analysis (Methods) or Results sections.
RESULTS & CONCLUSIONS	Discussion (2nd and 3rd paragraphs) refers to the results of the current study in comparison to the National Drug Strategy Household Survey (general population). It is unclear whether the comparisons are being made between the YMH sample (current study) with age-matched rates of substance use from the NDSHS (i.e limited to people aged 30 years or less, and/or comparing equivalent age groups with the age groups in the current study). Please clarify. Also, it is well documented that rates of comorbid mental health and alcohol/substance use problems are more pronounced in treatment seeking populations relative to the general community. I feel that the Discussion needs more on how the results of the current study support/contradict existing literature in this area…e.g. other studies examining prevalence of substance use across diagnostic categories indicate that rates of

	alcohol/substance use are highest among people with Bipolar Affective Disorder, and much has been made of the links between nicotine, cannabis and psychotic disorders. The Discussion could be expanded (word count permitting) to include consideration of some of the suggested mechanisms behind these associations – particularly the ones that are supported in the current study. Note in the final paragraph of the Discussion that substance use treatment programs need to be prioritized within mental health services for young people, however is there any information available on how receptive young people would be to these types of interventions? Perhaps a comment on this would be worthwhile.
REPORTING & ETHICS	No CONSORT-type diagram was included, but perhaps would add to the reader's understanding of the study design/dropouts/etc.
GENERAL COMMENTS	This is an important paper of high significance - mental health and substance use comorbidity is increasingly common and, as the authors importantly highlight, is associated with long term morbidity. Do the study numbers permit an exploration of the prevalence of comorbidity between substances examined (alcohol+nicotine, alcohol+cannabis, cannabis+nicotine, alcohol+cannabis+nicotine – or alternatively, 1 substance vs. 2 substances vs. 3 substances – lifetime or recent/current) – this might also demonstrate a relationship with functional and other variables?

REVIEWER	E.A.P. Poelen Ph.D., Radboud University, the Netherlands
REVIEW RETURNED	22-Nov-2012

THE STUDY	In the Statistical Analysis paragraph in the methods section the analyses are only minimal described. The logistic regression analyses should be more concisely described. It doesn't get clear from this section that diagnosis is analyzed as an independent variable. Within the categorization of diagnoses the "other" category is rather multiform. It contains a few significant disorders with completely different characteristics. This category consists of a quite large number of participants (more participants than psychosis and beh/dev group), therefor it should make sense to break down this category. In particular, putting substance use disorders in this category seems awkward as this diagnosis is of course strongly related to substance use.
GENERAL COMMENTS	From the introduction the reader might get the overall impression that the focus of the problem is on a physical health perspective, while the topic of the paper : substance use in mental health care triggers questions on co-morbidity and a mental health perspective. Therefore, I would like to suggest to stress the mental perspective more in the introduction.

VERSION 1 – AUTHOR RESPONSE

Response to Reviewer 1 (Frances Kay-Lambkin)

1.1: More information required on inclusion/exclusion criteria, and representativeness of sample compared to: headspace services more generally (i.e. who was excluded/not registered).

1.1-Reply: To clarify the inclusion criteria of this study, the following statement has been added to the Methods section (second sentence in Sample subsection):

"Subjects in this study were included if they were: (i) accessing services at one of the above-mentioned headspace sites; (ii) between the ages of 12 and 30 years; (iii) and consented to be enrolled on a patient register".

Furthermore, to clarify the design of the study, the following sentence (see Methods, 'Sample' subsection) was revised to:

"Thus, this study utilised data obtained from 2,122 young people (12 to 30 years) who consecutively volunteered to enter the patient register between October 2007 and June 2012".

With regards to the representativeness of this sample, the second paragraph of the Discussion has been re-written to better reflect these findings.

1.2: More information could be provided on the logistic regression models that were tested.

1.2-Reply: To clarify our regression analyses, we have re-written the end of the Statistical Analyses section to read as follows:

"To determine whether age was a contributing factor to any observed differences in the prevalences of recent substance use, logistic regressions were conducted with a dichotomous dependent variable of substance use (e.g. 'at least weekly' versus 'less than weekly') and with diagnosis and age (and their interaction) entered as predictor variables. The forced entry method was employed and significant regression models were only accepted if the Hosmer-Lemeshow goodness-of-fit statistic was non-significant".

Furthermore, the relevant aspects of the Results section have been re-written to clarify the outcomes of the regression models; including use of the beta coefficients to interpret the data.

1.3: Clarify the comparisons to the National Drug Strategy Household Survey (general population).

1.3-Reply: To avoid confusion we have removed the statement (in the Discussion) regarding the comparisons of our data to the general population (NDSHS) data in terms of prevalences of any lifetime use of both nicotine and cannabis. For clarity, we now only compare our recent use data with that of the NDSHS. Thus, we have re-written the relevant statements in the Discussion (see all of paragraph 3) to more accurately depict the comparisons of recent use across each substance

among the three age groups. We have also specifically referred to tables within the 2010 NDSHS report.

1.4: comorbid mental health and alcohol/substance use problems are more pronounced in treatment seeking populations relative to the general community

1.4-Reply: We thank the Reviewer for pointing this out and have revised the following sentence in the Discussion (new text is underlined):

"There is a general consensus that substance misuse in individuals with a mental disorder is common[6, 18, 19], particularly in treatment seeking populations [21]; with evidence to suggest that 'problematic substance use is the most common comorbid condition among people with a major mental illness and is associated with poorer patient outcomes'[20]".

1.5: more discussion on how the results of the current study support/contradict existing literature in this area

1.5-Reply: A new paragraph in the Discussion (paragraph 6) has been included to better describe our findings with respect to the literature; drawing attention to key associations among disorders and substance use.

1.6: how receptive young people would be to these types of interventions?

1.6-Reply: To elaborate on our concluding statements, the following text (as suggested by the Reviewer) has been added to the end of the last paragraph of the Discussion:

"Traditionally, mental health services have been separate to interventions that target substance use, however, there are growing suggestions that complex young people (with comorbid mental health and substance use problems) would be most receptive to integrated rather than sequential or parallel approaches" (citing two new references).

1.7: include CONSORT-type diagram to understand study design/dropouts/etc.

1.7-Reply: This type of figure is not possible as we have do not have accurate records on the individuals who did not consent to being involved with the patient register or neurobiology study. We have, however, clarified the inclusion criteria and design of the study above (see 1.1).

1.8: prevalence of comorbidity between substances.

1.8-Reply: We have added the following paragraph to the Results section (see 'Recent Use' subsection, paragraph 4) in order to describe some patterns with respect to combined substance use in this YMH cohort. Given that the paper already has 8 tables we opted to include these data as text only, reading as follows:

"In terms of combined substance use, across the entire sample, 17.8% (367/2063) of cases reported

'at least weekly' use of both alcohol and tobacco; this combination was more common in males (at 20.5%; 196/954) as compared to females (15.4%; 171/1109). Similarly, the 'at least weekly' use of: (i) alcohol and cannabis; and (ii) nicotine and cannabis was higher in males (8.5% and 12.9%, respectively) compared to females (5.7% and 8.8%, respectively). Notably, the combination of all three substances used 'at least weekly' was at 5.4% in females (59/1096) and at 7.9% in males (75/945)".

Response to Reviewer 2 (EAP Poelen)

2.1: logistic regression analyses should be more concisely described.

2.1-Reply: This has been addressed in 1.2-Reply (see above).

2.2: the "other" category is rather multiform… it should make sense to break down this category.

2.2-Reply: We have a re-written our Methods to more accurately describe the determination of the diagnostic categories in this study. As suggested by the Reviewer, we have broken down the "Other" diagnostic category and updated the analysis and tables (2a, 2b, 2c & 4), accordingly. The last sentence of the Sample subsection of the Methods now reads as follows:

"For the purposes of categorisation, clinicians were asked to select one of the following 'primary diagnosis' disorders: (i) 'depression'; (ii) 'bipolar'; (iii) 'anxiety' (including obsessive compulsive, generalised anxiety, agoraphobia/panic and social anxiety disorders); (iv) 'psychosis' (including first episode and schizophrenia); (v) 'behavioural/developmental' (including attention-deficit hyperactivity, conduct, oppositional defiance and impulse control disorders); (vi) 'substance use'; (vii) 'personality'; (viii) 'eating disorder'; (ix) 'autism spectrum'; (x) 'other'; and (xi) 'unclear, still assessing'".

Furthermore, the breakdown of the "Other" category resulted in a total of eleven diagnostic groups. The four new groups (substance use, personality, eating disorder & autistic spectrum) are relatively small in number (ranging from 22 to 40) compared to the five 'main' diagnostic groups of patients who access the headspace services (i.e. depression, bipolar, anxiety, psychosis and behavioural/developmental). For this reason, as well as the fact that the remaining two groups ("other" - as defined above - and "unclear") are somewhat ambiguous, we decided to include only the main five diagnostic categories in the inferential statistics (i.e. ANOVA & regression) although the data for all 11 groups is provided in Tables 2a, 2b, 2c & 4). The following text has been added to the Results section (see 'Recent Use' subsection, paragraph 4):

"Due to some limitations (e.g. unequal sample sizes) and to facilitate interpretation, ANOVA and regression analyses included only the first five diagnostic categories (i.e. depression, bipolar, anxiety, psychosis and behavioural/developmental)".

Finally, a new brief paragraph has been included in the Results (last paragraph of Recent Use subsection) to summarise the findings among the other 6 diagnostic categories.

2.3: stress the mental health perspective more in the introduction.

2.3-Reply: The following statement has been added to the beginning of the last paragraph of the Introduction:

"From a mental health perspective, there is a need to better understand the early stages of substance misuse in young people with emerging mental disorders. The identification of substance use onset and subsequent patterns of use in such young people would help early intervention approaches".

VERSION 2 – REVIEW

REVIEWER	Dr. Frances Kay-Lambkin Research Fellow National Drug and Alcohol Research Centre University of New South Wales AUSTRALIA No competing interests to declare
REVIEW RETURNED	21-Dec-2012

- The reviewer completed the checklist but made no further comments.